

RF/RMRS-97-103, Rev. 1

**Task-Specific Health and Safety Plan for the
Site Characterization of the 903
Drum Storage Area (IHSS 112),
903 Lip Area (IHSS 155), and Americium Zone**

August 31, 1998

**DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE**

This Task-Specific Health and Safety Plan addresses the task specific hazards associated with the Site Characterization of the 903 Drum Storage Area (IHSS 112), 903 Lip Area (IHSS 155), and Americium Zone. Field activities will be conducted using this HASP for task and area specific hazards, and the RMRS Groundwater Monitoring Program Health and Safety Plan (RF/ER-SAF-94-GMP, Rev. 1) for programmatic and general hazards.

ADMIN RECORD

I112-A-00017



GROUNDWATER MONITORING PROGRAM SUBCONTRACTOR
SPECIAL TASK
HEALTH AND SAFETY PLAN
Revision Level 1
Job No. GE6000VS

1. Items 1-9 to be completed by RMRS Special Task Project Manager.

Project Name CHARACTERIZATION OF THE 903 DRUM STORAGE AREA (IHSS 112),
903 LIP AREA (IHSS 155), AND AMERICIUM ZONE

Task: This Special Task Health and Safety Plan (HASP) is only for the work to be conducted for the implementation of the Sampling Analysis Plan (SAP) (RF/RMRS-97-084) for the Characterization of the 903 Drum Storage Area (903 Pad) (IHSS 112), 903 Lip Area (Lip Area) (IHSS 155), and the Americium Zone. The sampling program proposed per the SAP is designed to further delineate and characterize the extent of radiological and VOC contamination for remedial activities. The scope of this proposed activity is limited to the collection of surface radiological data using HPGe methodology and surface soil samples for radiological analysis, collection of subsurface soil samples, using the Geoprobe or hollow-stem auger drilling methodology, for VOC and radiological analysis, and groundwater samples for VOC analysis if DNAPLs are suspected. Sample analyses and interpretation will be the responsibility of RMRS. Activities described in this Special Task HASP will be performed by or at the direction of RMRS Environmental Restoration Projects personnel.

Requested by: Mark Wood

Proposed Start-Up Date: January 1998 Project/Task No. GE6000VS

Reviewed by RMRS Health and Safety Supervisor

Printed Name M.D. Schreckengast
Signature M.D. Schreckengast Date 8-31-98

Reviewed and Approved by Radiological Engineer

Printed Name H.B. ESTABROOKS
Signature H.B. Estabrooks Date 8/31/98

Approved by RMRS Special Task Project Manager

Printed Name Mark R. Wood
Signature Mark R. Wood Date 8/31/98
Title Project Manager

Approved by RMRS Quality Assurance/Quality Control

Printed Name Greg DiGregorio
Signature Greg DiGregorio Date 8/31/98
Title RMRS Quality Engineer

Note to Project Managers: A signed and completed copy of the Health and Safety Plan and a signed and completed copy of the safety briefing must be included in the project file.

2. Project Description:

Description of Non-Intrusive Activities: Approximately 1500 HPGe measurements will be collected from the Americium Zone and possibly the Lip Area investigation areas. Each HPGe measurement will be collected from a 12 meter diameter Field of View (FOV). Follow-up FIDLER surveys may be performed to further delineate the areas with radionuclides equal to or above the RFCA Tier I action levels.

Description of Planned Intrusive Activities: Subsurface and surface soil sampling activities will be conducted in several phases. One phase will be the collection of approximately 15 "grab" surface soil samples from six selected HPGe locations for radiological analysis for verification and correlation to the surficial HPGe measurements per the SAP. One phase will consist of 25 soil boring locations on the 903 Pad utilizing Geoprobe drilling methodology to collect subsurface soil samples to a depth of three feet for radiological analysis and possibly volatile organic compound (VOC) analysis. One phase will consist of approximately 25 soil boring locations in the 903 Lip Area utilizing Geoprobe drilling methodology to collect subsurface soil samples to a depth of two feet for radiological analysis and possibly VOC analysis. Another phase, the VOC investigation, will consist of approximately 20 soil boring locations on the 903 Pad and the 903 Lip Area utilizing either Geoprobe or hollow-stem auger drilling methodology to collect subsurface soil samples to depths up to 28 feet for radiological and VOC analysis. Approximately 468 soil cores will be collected per the SAP. Soil core samples will be transported directly to the analytical laboratories after screening for radiological and VOC contamination and minimizing site personnel contact with potentially contaminated soils. Collection of groundwater samples with suspected DNAPLs will be performed per the SAP. Drill cuttings, if generated, will be containerized, temporarily stored in a 90-day RCRA permitted area pending analytical results, and then final disposition per FO.29. Returned environmental samples will be characterized on the basis of analytical results and process knowledge and dispositioned in accordance with FO.09 and FO.29.

3. Location:

This Task Specific HASP covers planned surface and subsurface soil and groundwater sampling activities to be performed for the site characterization of the 903 Pad (IHSS 112), the Lip Area (IHSS 155), and the Americium Zone, as shown in Figure 1.1. Field activities are scheduled during 1998 and 1999.

4. Facility/Work site Description

As shown in Figure 1.1, the work area is at the eastern edge of the industrial area and south of the East Access Road. From 1958 to 1967, the 903 Pad was used to for storing drums containing plutonium and uranium contaminated volatile organic compounds (solvents). Leaking drums resulted in contamination of the 903 Pad, the Lip Area, and the Americium Zone. Several remedial actions took place in the late 1960s and 1970s to remove hot spots and to cap the 903 Pad with eight inches of clean fill and three inches of asphalt. The Lip Area was also graded and covered with seven inches of clean fill. The 903 Pad and the Lip Area are flat lying with a gentle slope to the south and east. The Americium Zone is generally flat lying with a gentle slope to the east and a steep slope to the south on the south side (Figure 1.1).

5. Proposed Personnel and Tasks:

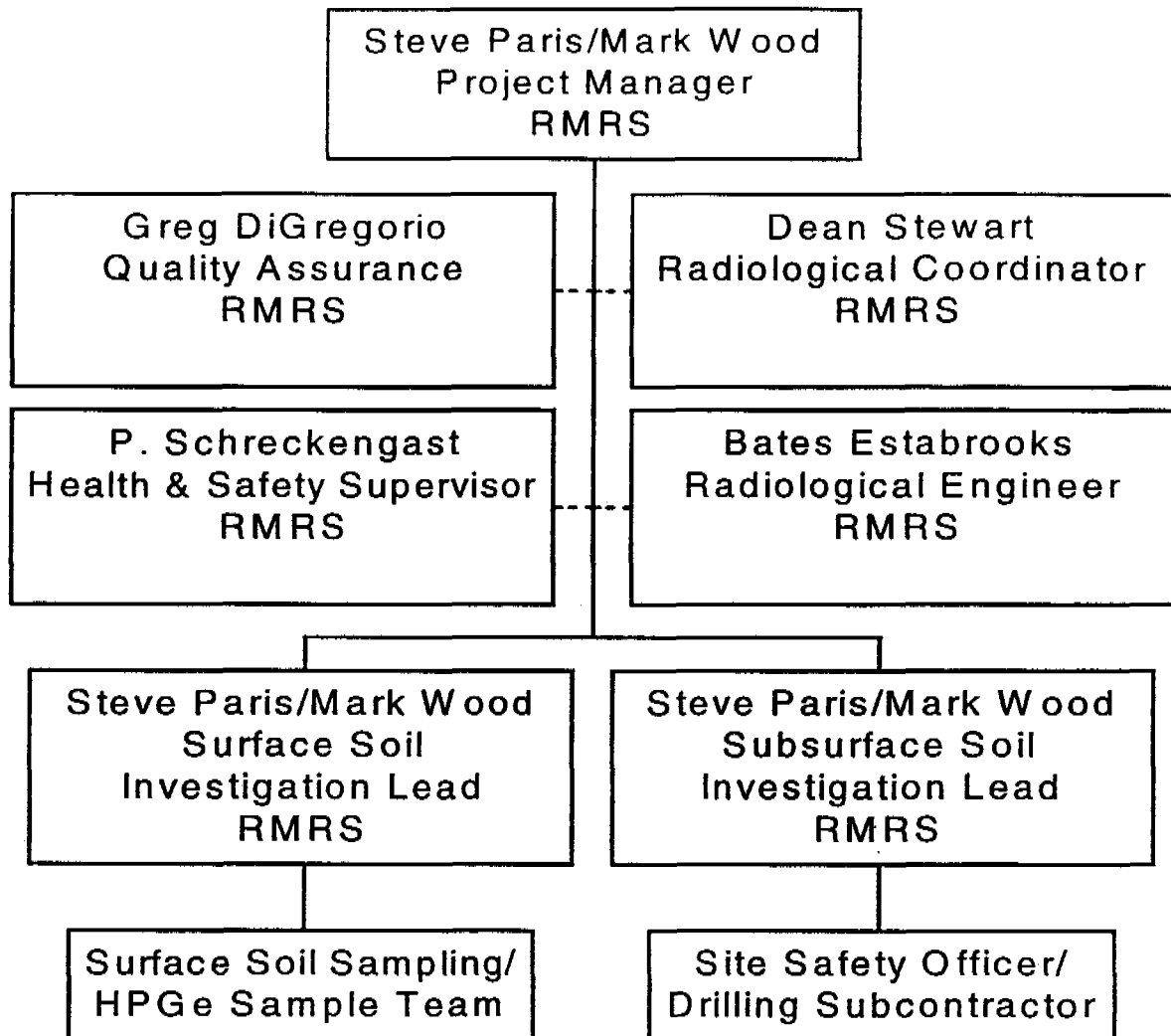
Figure 1.2 shows the project organization chart and project responsibilities.

Project Manager: Steve Paris and Mark Wood

Field Team Leader - Surface Soil Inv. Steve Paris and Mark Wood

Field Team Leader - Subsurface Soil Inv. Steve Paris and Mark Wood

Figure 1.2
903 Pad, 903 Lip Area, and Americium Zone
Organizational Chart



<u>Proposed Field Team</u>	<u>Job Function/Tasks</u>
Steve Paris and Mark Wood	RMRS Project Manager
Steve Paris	RMRS Surface Soil Team Lead/assist with subsurface soil inv. tasks
Mark Wood	RMRS Subsurface Soil Team Lead/assist with surface soil inv. tasks
Harold Sanchez, Ron Blea	Subcontractor Health and Safety Officer/Health and Safety Specialist
J. Boylin/R. Kohler	Subcontractor Geologist/logging and sampling
Rick Gentry	RMRS HPGe Data Coordinator/assist with HPGe data collection
Gary Stretesky	Subcontractor Geoprobe operator
Ray Michaels	Subcontractor Geoprobe operator
	Subcontractor Geoprobe operator
	Subcontractor Geoprobe operator
Ralph Rupp	Subcontractor Geologist/logging and sampling
Lee Booth	Canberra Project Manager and Gamma Spectrometry Specialist
Rebecca Mitchell	Canberra Industrial Hygiene Specialist
Paul Wojtaszek	Canberra Gamma Spectrometry Specialist
Todd Shipley	Canberra Gamma Spectrometry Specialist
Bates Estabrooks	RMRS Radiological Engineering

6. Confined Space Entry

A confined space is defined as: 1) large enough to enter; 2) limited access/egress; and 3) not intended for human occupancy. (CFR 1910.146[b]). A permit required confined space also may pose additional hazards such as: toxic contaminants, a flammable or oxygen deficient atmosphere, or other hazards, such as engulfment, or electrical or mechanical hazards should equipment be inadvertently activated while an employee is in the confined space. Confined spaces include but are not limited to storage tanks, process vessels, bins, boilers, ventilation or exhaust ducts, air pollution control devices, smoke stacks, underground utility vaults, sewers, septic tanks, and open top spaces more than four feet in depth such as test pits, waste disposal trenches, sumps and vats.

Will this task require entry into any confined or partially confined space?

 YES - Describe below
X NO

7. Cutting and Welding

Will this task involve use of a cutting torch or welding?

 YES - Describe below
X NO

8. Other Potential Hazards

X Chemical
X Radiological
 Fire/Explosion
X Heat Stress
 Electrical
X Machinery/Mechanical Equipment

X Trips, Slips, Falls
 Trenching/Shoring
 Heavy Equipment/Vehicular Traffic
 Overhead Hazards
X Unstable/Uneven Terrain
 Other - Describe below

6, 7, 8. Description/Other

Cold and hot weather hazards

9. I, Mark Wood, attest that this information is accurate to the best of my knowledge and hereby request a Health and Safety Plan for the task(s) designated above.

Mark Wood 8/31/98
Signature Date
Project Manager
Title

10. Chemical/Radiological Hazard Evaluation

Waste Media

- ☒ Airborne Contamination
☒ Surface Contamination
☒ Contaminated Soil
☒ Contaminated Surface Water
☒ Solid Waste
☒ Liquid Waste
☐ Sludge

Hazardous Characteristics

- ☐ Ignitable
☐ Corrosive
☐ Reactive
☐ Explosive
☒ Toxic (non-radiological)
☒ Radioactive

Substance

Hazard Summary. This work involves potential contact with soil and/or water containing concentrations of chemicals in the parts per million range (mg/Kg) and radioisotopes in the nanocuries per gram (nCi/g) range. Site specific data from the 903 Pad and Lip Area is provided in Table 1 which indicates the potential for hazardous levels of contamination in surface and subsurface soil in the work area. Particular attention will be paid to dust suppression and air monitoring activities at locations which could potentially produce contaminated soil or groundwater, and personnel will use real-time air monitoring results to determine when and if it is necessary to upgrade to higher levels of PPE. Table 2 summarizes potential contamination hazards. Table 3 summarizes the chemical hazards. See Appendix A for task-specific hazards, controls, personnel protective equipment, and the task-specific specific Activity Hazard Analysis.

Table 1
Maximum Detected Contaminant Concentrations in
Soil and Groundwater at the 903 Pad and 903 Lip Area

Compound	Surface Soil	Subsurface Soil	Groundwater
Carbon Tetrachloride	NA	330 µg/Kg	100,000 µg/L
Chloroform	NA	240 µg/Kg	49,000 µg/L
Chloromethane	NA	ND	2,600 µg/L
Methylene Chloride	0 mg/Kg	66 µg/Kg	24,000 µg/L
Tetrachloroethene	0 mg/Kg	4,900 µg/Kg	20,000 µg/L
Trichloroethene	0 mg/Kg	27 µg/Kg	4,600 µg/L
1,1,1-Trichloroethane	NA	ND	46 µg/L
1,1-Dichloroethane	NA	ND	150 µg/L
1,3-Dichloropropene	NA	NA	8.1 µg/L
1,1-Dichloroethene	NA	3 µg/Kg	26 µg/L
Cis-1,2-Dichloroethene	NA	3,500 µg/Kg	2900 µg/L
Vinyl Chloride	NA	ND	34 µg/L
Americium-241	3,140 pCi/g	31,670 pCi/g	46.54 pCi/L
Plutonium-239/240	14,950 pCi/g	152,260 pCi/g	354.6 pCi/L
Uranium-238	10.2 pCi/g	1.7 pCi/g	38.6 pCi/L

Beryllium	12 mg/Kg	1 mg/Kg	
Copper	181 mg/Kg	26 mg/Kg	
Chromium	177 mg/Kg	73 mg/Kg	
Lead	228 mg/Kg	33.6 mg/Kg	
Nickel	93 mg/Kg	44 mg/Kg	
Strontium	104 mg/Kg	121 mg/Kg	
Vanadium	70 mg/Kg	73.8 mg/Kg	

NA = Not Analyzed, ND = Not Detected

Primary Hazard (Rate: low, medium, high, extreme)

Table 2
Potential Contamination Hazards

Task Description	Potential Contaminants	PPE to be Used
HPGe and FIDLER surveys and surface soil sampling.	Soil with low to high levels of radionuclides.	Start in Level D or per RWP requirements. Upgrade to modified Level D, C or B at the discretion of the HSS.
Soil borings, disturbance of subsurface soil and collection of soil samples.	Soil and saturated soil with low to high levels of volatile organic compounds and radionuclides.	Start in modified Level D or per RWP requirements. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to C, or B at the discretion of the HSS.
Groundwater sampling.	Groundwater with low to high levels of volatile organic compounds.	Start in modified Level D or per RWP requirements. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to C, or B at the discretion of the HSS.

11. Ambient Air/Site Monitoring Procedures

The following instruments shall be used to monitor the work environment and workers' breathing zones prior to site entry and at the specified intervals on the 903 Pad during the VOC investigation only.

Instrument	Monitoring Frequency
<input checked="" type="checkbox"/> PID (HNU< OVM) w/10.5+11.7 eV lamp	Cont. 15 min. 30 min. hourly other <input checked="" type="checkbox"/>
<input type="checkbox"/> OVA	Cont. 15 min. 30 min. hourly other _____
<input type="checkbox"/> Combustible Gas Indicator	Cont. 15 min. 30 min. hourly other _____
<input type="checkbox"/> H2S Detector	Cont. 15 min. 30 min. hourly other _____
<input type="checkbox"/> Colorimetric Detector Tubes	Cont. 15 min. 30 min. hourly other _____
<input checked="" type="checkbox"/> Other (describe below)	Cont. 15 min. 30 min. hourly other <input checked="" type="checkbox"/>

Description/other:

TVA 1000B, Toxic Vapor Analyzer (PID/FID) may be used. Monitor personnel breathing zones and soil sample surfaces during times of potential exposure at the discretion of the HSS. For gamma spectroscopy surveys and surface soil sampling in the Americium Zone and shallow radiological subsurface sampling in the 903 Lip Area, monitoring for VOCs is not necessary. Monitor visible dust with mini-ram dust monitor at the discretion of the HSS. High volume air monitoring per the RWP, as required per Radiological Operations direction.

TABLE 3 Chemical Hazard Summary

CHEMICAL	MATRIX	OSHA PEL	ACGIH TLV	NIOSH REL	STEL	CEILING	IDLH	SKIN NOTATION	CORROSIVE IRRITANT	BOILING POINT °F	VAPOR PRESSURE	FLASH POINT °F	UEL (%)	LEL (%)
Beryllium	S	0.002 mg/m ³	0.002mg/m ³ (B)	0.0005 mg/m ³ (A)	0.01mg/m ³ (3)	0.005 mg/m ³ (2)	4 mg/m ³ (1) (as Be)			4532 °F	0 mm	NA	NA	NA
Cadmium	S	0.005 mg/m ³	0.01mg/m ³ (B)	(A)			9 mg/m ³ (1) (A)			1409 °F	0 mm	NA	NA	NA
Carbon Tetrachloride	S/W	10 ppm	5 ppm	(A)	2 ppm (1)	25 ppm (2)	200 ppm (1) (A)	X		170 °F	91 mm	NA	NA	NA
Chloroform	S/W	50 ppm	10 ppm	9.78 mg/m ³ (8)	2 ppm (1)		500 ppm (1)			143 °F	180 mm	NA	NA	NA
Chloromethane	S/W													
Chromium (Metal)	S	1 mg/m ³	0.5 mg/m ³	0.5 mg/m ³			250 mg/m ³ (1)	X	X	4788 °F	0 mm	NA	NA	NA
Copper	S	1 mg/m ³	1 mg/m ³	1 mg/m ³	ND	ND	10 mg/m ³			4703 °F	0 mm	NA	NA	NA
Cyanide	S	5 mg/m ³	5 mg/m ³				50 mg/m ³ (3)	X	X	2735 °F	0	NA	NA	NA
1,1-Dichloroethane	S/W	100 ppm	100 ppm	100 ppm		400 mg/m ³ (3)	3000 ppm (1)			135 °F	182 mm	2 °F	11.4	5.4
1,1-Dichloroethene	S/W	1 ppm	5 ppm	(A)	20 ppm	ND	(A)			89 °F	500 mm	-2 °F	15.5	6.5
di-1,2-Dichloroethene	S/W	200 ppm	200 ppm	200 ppm			1000 ppm			118-140 °F	180-285 mm	38-39 °F	12.8	5.6
1,3-Dichloropropane	W	1 ppm (A)	1 ppm	1 ppm (A)			(A)	X		228 °F	20 mm	77 °F	14.5	5.3
Hydrochloric Acid	S/W	5 ppm		5 ppm		5 ppm (1)	50 ppm		X	-121 °F	>1 atm	NA	NA	NA
Lead	S	0.05 mg/m ³	0.05 mg/m ³	0.100 mg/m ³			100 mg/m ³ (1)			3184 °F	0 mm	NA	NA	NA
Methylene Chloride	S/W	25 ppm	50 ppm	(A)	125 ppm (2)		2300 ppm (1)			104 °F	350 mm	7	23	13
Nitric Acid	S	2 ppm	2 ppm	2 ppm	4 ppm		25 ppm (1)		X	181 °F	48 mm	NA	NA	NA
No. 2 Diesel Fuel	S		100 ppm			5 mg/m ³ (3)		X		350-700 °F	0.5 mm @ 20 °C	52 @ 125	7.50%	0.80%
Pentachlorophenol	S	0.5 mg/m ³	0.5 mg/m ³	0.5 mg/m ³			2.5 mg/m ³ (1)	X		588 °F (Decomposes)	mm	NA	NA	NA
PCBs	S	0.5 mg/m ³	0.5 mg/m ³	0.001 mg/m ³ (A)			5 mg/m ³ (1)		X	689-734 °F	0.00006 mm	NA	NA	NA
Silver	S	0.01 mg/m ³	0.1 mg/m ³	0.01 mg/m ³			10 mg/m ³ (1)		X	3632 °F	0 mm	NA	NA	NA
Strontium														
Sulfuric Acid	S	1 mg/m ³	1 mg/m ³	1 mg/m ³	3 mg/m ³ (3)		15 mg/m ³ (1)		X	554 °F	0.001 mm	NA	NA	NA
Tetrachloroethene	S/W	100 ppm	25 ppm	(A)	100 ppm	200 ppm	150 ppm (A)			250 °F	14 mm	NA	NA	NA
Toluene	S	200 ppm	50 ppm	100 ppm	150 ppm (1)	300 ppm (2)	800 ppm (1)	X	X	232 °F	21 mm	40 °F	7.10%	1.10%
1,1,1 Trichloroethane	S	350 ppm	350 ppm	350 ppm	450 ppm		1000 ppm (1)			155 °F	100 mm	NA	12.50%	7.5
Trichloroethene	S/W	100 ppm	50 ppm	25 ppm (A)	100 ppm (3)	200 ppm (2)	1000 ppm (1)		X	189 °F	58 mm	NA	10.5% @ 77 °F	8% @ 77 °F
Uranium (soluble compounds)	S	0.05 mg/m ³	0.2 mg/m ³	0.05 mg/m ³	0.6 mg/m ³ (B,3)		10 mg/m ³ (1)					NA		
Vanadium	S	0.05 mg/m ³	0.05 mg/m ³	0.05 mg/m ³ (15 min Ceiling)	ND	0.5 mg/m ³	70 mg/m ³			3182 °F	0 mm	NA	NA	NA
Vinyl Chloride	W	1 ppm		(A)		5 ppm (15 min)	(A)			7 °F	3.3 atm	NA (gas)	33	3.6

Notes: Units are as specified in the column headings unless otherwise noted.

(A) NIOSH Identified Carcinogen

(B) ACGIH Carcinogen

Abbreviations: ACGIH = American Conference of Government Industrial Hygienists

atm = atmosphere

eV = electron volt

IDLH = Immediately Dangerous to Life or Health

IP = Inhalable Particles

LEL = Lower Exposure Limit

mg/m³ = milligrams per cubic meter

S = Soil matrix

W = Water matrix

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ppm = parts per million

REL = Recommended Exposure Limit

STEL = Short-term Exposure Limit

TLV = Threshold Limit Value

UEL = Upper Exposure Limit

UNK = unknown

*F = degrees Fahrenheit

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

mm = millimeter

N/A = not applicable

NE = no evidence

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

REL = Recommended Exposure Limit

STEL = Short-term Exposure Limit

TLV = Threshold Limit Value

UEL = Upper Exposure Limit

UNK = unknown

*F = degrees Fahrenheit

12. Action Levels:

Task personnel will observe the following Action Levels:

Table 4

Field Monitoring Equipment - Action Levels

Instrument	Action Level	Specific Action
PID/FID	Any sustained reading above background in the breathing zone	If any sustained reading above background is present in the breathing zone, affected personnel will move upwind for a time period determined by the HSS. Most likely, the VOC levels will dissipate, as determined by the HSS, and personnel may return to the work area. If readings above background do not dissipate, use a large fan to remove the VOCs from the breathing zone. If the fan does not reduce VOC readings to background levels, stop work and contact RMRS Health & Safety and the task-specific project manager.
Mini-ram dust monitor	1.5 mg/m ³ sustained dust levels obtained in the breathing zone.	If 1.5 mg/m ³ , sustained are obtained in the breathing zone, apply dust suppression and soil wetting techniques using a small sprayer or other equivalent means.
High Volume Air Sampler, if required by RWP	Air samples indicate equal to or greater than the RWP suspension limits.	If equal to or greater than 1 DAC or limit per RWP is observed, pause work and evaluate for radon. If not radon, suspend work, contact Rad Engineer and evaluate controls and PPE.

13. Personal Monitoring

☒ Passive Dosimeter

☒ Personal Air Sampling

☐ Other

Description/Other:

Personal air monitoring/sampling will be required if sustained VOC readings over background after venting are observed.

14. Biological Monitoring/Medical Surveillance

N/A This project requires medical surveillance or bioassay monitoring procedures per the ALARA Job Review.

15. Onsite Control

Control boundaries have been established, and the Exclusion Zone (the contaminated area), Hotline, decontamination Line, Contamination Control Zone and Support Zone (clean area) have been designated and are identified in Section 6.5 of the GMP HASP. Specifically, work zones will be clearly labeled and an Exclusion Zone of 10 feet will be maintained around the intrusive activity. During non-intrusive activities, work zones will be established in accordance with the RWP.

Harold Sanchez, Ron Blea, and Rebecca Mitchell have been designated to coordinate access control on the individual work sites during the implementation of the separate site characterization tasks. No unauthorized person shall be allowed beyond the Contamination Reduction Zone Control Line without approval.

An RCT/HSS will be assigned to perform radiological surveys and contamination monitoring in accordance with the RWP and RFETS procedures for the different site characterization tasks.

16. Personal Protective Equipment

<u>Location</u>	<u>Job Function/Task</u>	<u>Initial level of Protection</u>
903 Pad/903 Lip Area	Subsurface soil sampling	
Exclusion Zone (Contamination Area or High Contamination Area)	<u>Mod. Level D protection unless the RWP has more stringent requirements</u>	B C <u>D</u> 1 2 3 OTHER B C D 1 2 3 OTHER B C D 1 2 3 OTHER
Contamination Reduction Zone (Radiological Buffer Area)	<u>Level D protection unless the RWP has more stringent requirements</u>	B C <u>D</u> 1 2 3 OTHER B C D 1 2 3 OTHER B C D 1 2 3 OTHER
<u>Location</u>	<u>Job Function/Task</u>	<u>Initial level of Protection</u>
Americium Zone	HPGe/FIDLER surveys and surface soil sampling	
Exclusion Zone (Contamination Area or High Contamination Area)	<u>Level D protection unless the RWP has more stringent requirements</u>	B C <u>D</u> 1 2 3 OTHER B C D 1 2 3 OTHER B C D 1 2 3 OTHER
Contamination Reduction Zone (Radiological Buffer Area)	<u>Level D protection unless the RWP has more stringent requirements</u>	B C <u>D</u> 1 2 3 OTHER B C D 1 2 3 OTHER B C D 1 2 3 OTHER

List the specific protective equipment and material (where applicable) for each of the levels of protection identified above.

Level B

☐ Pressure demand airline with escape provisions
☐ Pressure demand SCBA

Level C (includes all Mod Level D req.)

☐ Half face air purifying respirator
☐ Full face air purifying respirator
☐ Full face canister air purifying respirator
☐ Inner latex gloves
☐ Outer NBR gloves

Level Mod D

☒ Standard work clothes/DOE coveralls
☒ Hard hat, steel-toed boots, safety glasses
☒ Ear protection during drill rig hammering operation
☒ Inner nitrile gloves (2 pair)
☐ Outer Nitrile Butyl Rubber (NBR) gloves (follow RWP)
☐ Outer Nitrile Butyl Rubber (NBR) booties (follow RWP)

Level D

☒ Standard work clothes/DOE coveralls
☒ Hard hat, steel-toed boots, safety glasses
☒ Ear protection during drilling hammering operation
☒ Outer NBR booties (follow RWP)

Note: Hard hat to be worn when within five feet of Geoprobe operation or 50 feet of hollow-stem auger operation, or if overhead hazards are present. Orange traffic vests required when moving drill rig.

Where air purifying respirators authorized, GMC-H are the appropriate canisters/ cartridges for use with the specific substances and concentrations anticipated. Cartridges will be replaced at the start of each work day.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE KNOWLEDGE AND APPROVAL OF THE HEALTH AND SAFETY OFFICER AND THE PROJECT MANAGER.

17. Decontamination

Personnel and equipment leaving the Exclusion Zone/Contamination Area or High Contamination Area will proceed through the decontamination procedures in the contamination reduction zone (Radiological Buffer Area) in accordance with Section 6.5.2.1, Radiological Areas - Step-off Pad Requirements and the task specific RWP:

Emergency decontamination procedures:

18. Confined Entry Procedures ☒ Not Applicable

Yes N/A

Yes N/A

☐ ☐ Provide Forced Ventilation

☐ ☐ Refer to Personal Protection Equip. (#16)

☐ ☐ Test Atmosphere for:

☐ ☐ Refer to Emergency Procedures. (#29)

☐ ☐ (a) %O₂

☐ ☐ Other Special Procedures

☐ ☐ (b) %LEL

☐ ☐ © Other

Descriptions/Other:

19. Cutting/Welding

Yes N/A

☒ Not Applicable

☐ ☐ Relocate or protect combustibles

☐ ☐ Wet down or cover combustible floor

☐ ☐ Check flammable gas concentrations (%LEL) in air

☐ ☐ Cover wall, floor, duct and tank openings

☐ ☐ Provide fire extinguisher

Other Special Instructions:

20. Onsite Organization and Coordination

Project Manager: Steve Paris, Mark Wood

Field Team Leader - Surface Soil Inv.: Steve Paris, Mark Wood

Field Team Leader - Subsurface Soil Inv.: Mark Wood, Steve Paris

Health & Safety Supervisor: Dave Farler/ Peggy Schreckengast

Field Team Members

Job Function/ Health and Safety Tasks

Steve Paris, Mark Wood RMRS Project Manager responsible for implementation of HASP

Harold Sanchez Subcontractor Health and Safety Officer/Health and Safety Specialist
responsible for implementation of HASP

Ron Blea Subcontractor Health and Safety Officer/Health and Safety Specialist
responsible for implementation of HASP

Rebecca Mitchell Subcontractor Health and Safety Officer responsible for implementation of HASP

Bates Estabrooks RMRS Radiological Engineering responsible for work conducted in accordance
with ALARA Job Review, Task-specific RWP, property release evaluations, and
Radiological Control Manual

Chip Sawyer Radiological Operations foreman, review surveys, reviews and signs RWPs,
point of contact

21. Special Instructions:

Unanticipated Hazards or Conditions

Any hazards that may be encountered which are of an unusual nature or which represent an unknown threat will be managed in accordance with this RMRS policy statement. "In the event unanticipated hazards or conditions are encountered, the project activities will pause to assess the potential hazard or condition. The potential hazard or condition will be evaluated to determine the severity or significance of the hazard or condition and whether the controls on the project are sufficient to address the hazard or condition. Based on this initial evaluation, a determination will be made whether to proceed with controls currently in place; segregate the hazard or condition from the project activity, if it can be done safely; or curtail operations to address the unexpected hazard or condition. Concurrence to proceed down the selected path must be obtained from the RMRS Vice President or their designee. In addition, the resumption of field activities involving radiological issues will be in accordance with Article 345 of the RFETS Radiological Control Manual".

22. Sanitation Requirements

Portable potable water supply available on work site? X Yes

Portable toilets required on work site? Yes If Yes, how many?
 X No

Temporary washing/shower facilities required at work site? Yes If Yes, describe below
 X No If No, state location of existing facilities.

Description: Toilets and shower facilities are available in the Field Operations Yard, T891Q for males and the Central Avenue Decon Trailer for females.

23. Field Procedures Change Authorization

Instruction Number to be changed _____ Duration of Authorization Requested _____ Date: _____
 Today only
 Duration of Task

Description of Procedures Modification: _____

Justification: _____

Person requesting change:

Verbal authorization received from:

Name _____

Name _____

Time _____

Title _____

Title _____

Signature _____

Approved by (Signature of person name above to be obtained within 48 hours of verbal authorization)

24. Emergency Procedures

This page is to be posted at a prominent location onsite.

Yes No

X Onsite communications required?

Emergency Channel Extension 2911 or radio number 2911

Nearest telephone Building T891R, T900D, and T900E

Fire and Explosion:

In the event of a fire or explosion, if the situation can be readily controlled with available resources without jeopardizing the health and safety of yourself, the public, or other site personnel, take immediate action to do so if currently trained, otherwise:

1. Notify emergency personnel by calling 2911
2. If possible, isolate the fire to prevent spreading.
3. Evacuate the area.

Chemical exposure:

Site workers must notify the site health and safety officer immediately in the event of any injury or any of the signs or symptoms of overexposure to hazardous substances identified below:

Substances Present

Carbon Tetrachloride

Symptoms of Acute Exposure

Inhalation: irritate eyes, skin, respiratory
Absorption: depression, nausea, vomiting
Ingestion: kidney, drowsiness, dizziness
Consumption: incoordination

First Aid

Eye: Irrigate immediately
Skin: wash immediately
Breathing: Resp. support
Swallow: Immediate medical attention.

Tetrachloroethene

Inhalation: irritate eyes, nose, throat
Absorption: nausea, flush face, neck
Ingestion: vertigo, dizzy, incoherent, headache
Consumption: sleepy, skin redness, liver

Eye: Irrigate immediately
Skin: wash immediately
Breathing: Resp. support
Swallow: Immediate medical attention

Solvents, general

Inhalation: irritate eyes, skin, respiratory
Absorption: depression, nausea, vomiting
Ingestion: kidney, drowsiness, dizziness
Consumption: incoordination

Eye: Irrigate immediately
Skin: wash immediately
Breathing: Resp. support
Swallow: Immediate medical attention

Onsite injury or illness

In the event of an injury requiring more than minor first aid, or any employee reporting any sign or symptom of exposure to hazardous substances, immediately take the victim to the RFETS Medical Facility located at Bldg. 122 (Figure 1.1), phone X2594. In the event of life-threatening or traumatic injury, implement appropriate first-aid and immediately call for emergency medical assistance at 2911.

Designated Personnel Current in first Aid/CPR (Names)

Harold Sanchez
Mark Wood
Peggy Schreckengast
Dave Farler

Gary Stretesky
John Boylan
Ron Blea
Steve Paris

Designated back-up personnel (Names)

Function

This page is to be posted at a prominent location onsite.

Required Emergency Back-Up Equipment

Latex or nitrile surgeon gloves, one-way CPR mask.

Emergency Response Authority:

Harold Sanchez, Ron Blea, Rebecca Mitchell is the designated site emergency coordinator and has final authority for first response to onsite emergency situations for the individual characterization programs they will be working on.

Upon arrival of the appropriate emergency response personnel, the site emergency coordinator will defer all authority but remain on the scene, if necessary, to provide any and all possible assistance. At the earliest opportunity, the site safety officer or the site emergency coordinator will contact the project coordinator or health and safety officer.

Project Manager Steve Paris, Mark Wood Phone (w) 3656, 6689 (h)

Health and Safety Supervisor Peggy Schreckengast Phone (w) 6790 (d) 212-6358 (h)

Site Safety Officer Harold Sanchez Phone (w) 4953 (r) 3754 (h)

Site Safety Officer Ron Blea Phone (w) (r)

Site Safety Officer Rebecca Mitchell Phone (w) 3374

Emergency Contact Telephone and Pager Numbers

Fire	x2911	Poison Center	629-1123
Ambulance	x2911	Security	x2911

Nearest Emergency Medical Services Are Located At Building 122 as shown on Figure 1.1.

Nearest telephone is located at: T-1 trailers

Additional Project Telephone(x), pager (d) or radio (r) Numbers

Vice President - ER - John Law	x8760/d212-6357
ER Projects Manager - Annette Primrose	x4385/d212-6338/r3801
Project Manager - Steve Paris	x3656/d212-6587/r3727
Project Manager - Mark Wood	x6689/d212-6486/r3755
H&S Manager - Ken Jenkins	x5374/d212-5693/r4505
Radiological Engineer - Bates Estabrooks	x3769/d212-6469/ r3768
HAZMAT Emergency Response	x2911/r2911
RFETS Shift Supervisor	x2914/r3301
Occupational Health General Information	x2594

25. Safety Briefing

The following personnel were present at the pre-job safety briefing conducted at (time) on _____
(date) at _____ (location), and have read the above plan and are familiar with its
provisions:

Name

Signature

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Fully charged ABC class fire extinguisher available onsite?

Yes _____

Fully stocked First Aid Kit available onsite?

Yes _____

All project personnel advised of location of nearest phone?

Yes _____

All project personnel advised of location of designated medical facility?

Yes _____

Printed name of field team leader or site safety officer

Signature

Date

Appendix A

Appendix A **Task-Specific HASP for the Site Characterization of the 903 Drum Storage Area (IHSS 112), 903 Lip Area (IHSS 155), and Americium Zone**

Site Location and Description:

Location : 903 Pad, Lip Area, and Americium Zone

Description: HPGe surveys, FIDLER surveys, surface soil samples, and drill soil borings to collect soil and groundwater samples.

Suspect Contaminants: PCE, CCl₄, Pu, Am

MONITORING REQUIREMENTS		ACTION LEVELS				Notes
PEL	Instrument	Range	Level D modified	Level C	Level B	
Hydrocarbons	TVA-1000 w/ 10.4 eV +					
	Minirae w/ 11.7 eV lamp	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background in BZ
	PID	0-2,000 ppm	>bkg	N/A	*	
	FID	0-50,000ppm	>bkg	N/A	*	
Particulates	MIE Miniram	0.1-100 mg/m ³	1.5 mg /m ³	1.5 mg /m ³	*	*Dust Control (mistng) will be used to minimize dust generation at or below 1.5 mg/m ³ .

Personal Monitoring

Contaminant		Analytical Method	
Monitoring for VOA's using personal sampling methods is required for sustained levels in BZ, upgrade for respiratory protection.		NIOSH Methods	
Monitoring for Methane in suspected areas, stop work above 25% LEL explosion hazard, withdraw from area immediately.		Range 0-100% LEL, MSA Passport or equivalent.	

Personal Protective Equipment

Type of Work	Level D Doe Modesty	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Rubber Boots	Full Face Respirator	Level B Supplied Air
HPGe/FIDLER Surveys	*		*		*		*	*			*		
Surface Soil Sampling	*		*		*		*	*			*		
Drilling	*	(3), (1)	(3)	(1)	*			*	(1)		*		(2)
Soil Sampling/ Logging Core	*	(3), (1)	(3)	(1)	*			*	(1)		*		(2)
Sampling groundwater	*	(3), (1)	(3)	(1)	*			*	(1)		*		(2)
Handling IDM/residual soil samples	*	(3), (1)	(3)	(1)	*			*	(1)	*	*		(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if there is no wind present the use of large industrial size fan will be used. If work practices warrant, or wet/muddy conditions exist, Tyvek is required.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) Unless RWP is more stringent.

(*) Required under normal operations or can be changed at the discretion of HSS. Drillers will wear both inner and outer (11 mil) nitrile gloves or per RWP.

Notes

PEL = Permissible Exposure Limit ppm = parts per million PPE = Personal Protective Equipment OSHA = Occupational Safety and Health Administration
 PID = Photoionization Detector BZ = breathing zone VOA = Volatile Organic Analyte EPA = U.S. Environmental Protection Agency
 FID = Flame-ionization Detector mg/m³ = milligrams per cubic meter IDM = Investigative derived materials (typically soils) USCG = U.S. Coast Guard

**Activity Hazard Analysis for the Task-Specific Health and Safety Plan
for the Characterization of the 903 Drum Storage Area (IHSS 112),
903 Lip Area (IHSS 155), and Americium Zone**

ACTIVITY DESCRIPTION: Surface soil sampling, HPGe and FIDLER non-intrusive surveys, soil borings and soil and groundwater sampling using a truck-mounted drill rig.

Activity	Potential Hazard	Protective Control Measures
1) HPGe measurements and FIDLER surveys. Surface soil sampling, asphalt coring, soil borings (including soil core and groundwater sampling).	Slips, trips, and falls	Pre-activity work area survey to identify potential hazards associated with operations. Secure area, use safety shoes and glasses. Hazard assessment per the task-specific HASP.
	Exposure to airborne radioactive or chemical contaminants	On-site monitoring requirements will be established prior to project implementation per Section 7.0*, the task-specific HASP, and job-specific RWP.
	Dermal exposure with radioactive or chemical contaminants in soils and groundwater	Establish monitoring program prior to operations per ALARA Job Review. Define appropriate level of PPE per task-specific HASP and RWP.
	Mechanical/hydraulic hazards	Pre-work safety discussion and procedures identified in the task-specific HASP.
	Pinching hazards	Pre-work safety discussion and procedures identified in the task-specific HASP. Leather gloves per HSS.
	Noise exposure	Hearing protection will be required during drilling and Geoprobe hammer operations.
	Electrical hazards	Electrical hazards will be prevented per the Section 6.14*.
	Vehicular and pedestrian traffic.	Site control will be maintained per Section 6.0*.
	Underground/above-ground utilities	Utility clearances will be performed per the Soil Disturbance Permit.
	Manual material lifting	Personnel will follow safe lifting practices per Section 6.2.9*.
	Thunderstorms and lightning	Per Sections 6.12* and 8.4.6*.
	Falling objects	Hard hats, steel-toed boots, and safety glasses will be worn per Section 7.0* and per the task-specific HASP.
	Biological Hazards	Pre-work discussion to ensure awareness.
	Cold stress/heat stress	Pre-work discussion to ensure awareness. Follow guidance in Section 6.9* and Section 8.4*.
2) Equipment decontamination	Contact with potentially contaminated rinse water	Personnel PPE will be defined prior to decon operations (Section 7.0*).
	Similar exposure hazards as identified above	PPE and monitoring requirements consistent with intrusive and sampling operations.
	High pressure steaming, as appropriate	PPE as described in Section 7.0*.

*refers to the appropriate section in the Groundwater Monitoring Program HASP, RF/ER-SAF-94-GMP, Rev. 1

H&S CONCURRENCE: M.D. Schreckengast DATE: 8-31-98

PROJECT MANAGER CONCURRENCE: Mark Wood DATE: 8/31/98

Appendix B
Activity Hazard Analysis

Special Task
Health and Safety Plan for the Site
Characterization at the 903 Drum
Storage Area, 903 Lip Area
and Americium Zone

Investigation Area
Location Map

Figure 1.1

- Explanation**
- HPGe 150 foot FOV Circles (above 10pCi/g Am-241)
 - Plots above Tier 1 Action Levels
 - Investigation Area
 - Route to Emergency Medical Services, Bldg. 122
 - Proposed GPS Survey Point
 - 1976 Soil Removal Area (approx)
 - 1978 Soil Removal Area (approx)
 - 1970 Soil Fill Area
- Standard Map Features**
- Buildings and other structures
 - Lakes and ponds
 - Streams, ditches, or other drainage features
 - Fences and other barriers
 - Contour (20-Foot)
 - Paved roads
 - Dirt roads

DATA SOURCE:
HPGe data from New Airborne Gamma-Ray System,
Survey Data, Environmental Systems Group,
Rocky Mountain Remediation Services, LLC, 1997



Scale = 1 : 6810
1 inch represents approximately 561 feet

180 360 540 ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared
by:

RMRS
Rocky Mountain
Remediation Services, LLC.
Remediation is a service of the
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MAP ID: 07-0147

December 08, 1997